CLAIMS:

1.   A device for combining a current image (A) of an object (8) and a map image (B) of the dwell region (9) of the object (8), containing a data-processing system (5) that is arranged

a)   to estimate the position of the object (8) in relation to the map image (B), and

5   b)   to combine the map image (B) around the estimated position of the object (8) with the current image (A), the estimated position of the object in the map image (B) being brought into register with the actual position of the object in the current image (A), and only a section (7) of the map image (B) and/or of the current image (A) being used.

10   2.   A device as claimed in claim 1, characterized in that the object (8) is located in a path network (9) and the map image (B) at least partially reproduces the path network (9).

3.   A device as claimed in claim 1, characterized in that the map image (B) contains additional information about the structures and/or functions of the dwell region (9)
15   of the object (8).

4.   A device as claimed in claim 1, characterized in that it contains a monitor (10) for displaying the combination of the current image (A) and the section (7) of the map image (B).

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5.   A device as claimed in claim 1, characterized in that it has a memory (6) for storing a number of map images (B), which are being categorized according to a varying state of the dwell region (9) of the object (8).

25   6.   A device as claimed in claim 1, characterized in that it has a sensor device (3) for detecting at least one parameter that describes a varying state of the dwell region of the object (8), preferably for detecting an electrocardiogram and/or the respiratory cycle.

7.   A device as claimed in claim 5, characterized in that the data-processing system (5) is arranged to select from the memory (6) a map image (B) whose associated state of the dwell region (9) of the object (8) is a best possible match for the state of the dwell region during the current image (A).

8.   A device as claimed in claim 1, characterized in that the data-processing system (5) is arranged to assign in the map image (B) to each pixel a probability that it belongs to a spatially-defined structure, such as a path network (9) for example.

9.   A device as claimed in claim 1, characterized in that the data-processing system (5) is arranged to produce a distance image (D) from the map image (B) by a distance transformation.

10.   A device as claimed in claim 1, characterized in that, in the section (7), points not belonging to a spatially-defined structure, such as a path network (9) for example, are transparent.

11.   A device as claimed in claim 1, characterized in that it has an imaging means, especially an X-ray apparatus (4) and/or an NMR apparatus, for producing the current image (A) and optionally the map image (B).

12.   A device for combined portrayal of a current image (A) of an object (8) that is located in a path network (9) and a map image (B) of the path network (9), containing a data-processing system (5) that is arranged

a)   in the map image (B) to assign to each pixel a probability that it belongs to the path network (9);

b)   to produce a distance image (D) from the map image (B) by a distance transformation;

c)   by means of the distance image (D) to estimate the position of the object (8) in relation to the map image (B) of the path network (9), and

d)   to superimpose the map image (B) wholly or in sections on the current image (A) or a section thereof so that the estimated position of the object in the map image (B) is brought into register with the actual position of the object in the current image (A).

13.   A method for combining a current image (A) of an object (8) and a map image
(B) of the dwell region of the object, containing the following steps:

a)   estimation of the position of the object (8) in relation to the map image (B);

b)   combination of the map image (B) around the estimated position of the object
with the current image (A), the estimated position of the object in the map image (B) being
brought into register with the actual position of the object in the current image, and only a
section (7) of the map image (B) and/or of the current image (A) being used.